

## SEQUENCE LISTING

<110> Max-Delbrück-Centrum für Molekulare Medizin

<120> Chimeric Oligonucleotides and the Use Thereof

<130> 101195-24

<140> 09/423,157

<141> 2000-02-17

<150> DE 197 20 151.2

<151> 1997-05-02

<160> 29

<170> PatentIn Ver. 2.1

<210> 1

<211> 31

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence

oligonucleotide, linkages between positions 1 to  
20 are phosphorothioates, linkages between  
positions 20 to 31 are phosphodiester

<400> 1

tcagattagt actgcgcaga gtaggggta g 31

<210> 2

<211> 25

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence

oligonucleotide, linkages between positions 1 to  
20 are phosphorothioates, linkages between  
positions 20 to 25 are phosphodiester

<400> 2

tcagattagg actgcgcaga gtag 25

<210> 3

<211> 33

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence:

oligonucleotide, linkages between positions 1 to  
20 are phosphorothioates, linkages between  
positions 20 to 33 are phosphodiester

<400> 3

tcagattagt actgctcaga cagtagggt tag

33

<210> 4

<211> 31

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence:

oligonucleotide, linkages between positions 1 to  
20 are phosphorothioates, linkages between  
positions 20 to 31 are phosphodiester

<400> 4

tcagattagt actgctcaga gtagagtta g

31

<210> 5

<211> 25

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Combined DNA/RNA Molecule:

oligonucleotide, linkages between positions 1 to  
19 are phosphorothioates, linkages between  
positions 19 to 25 are phosphodiester

<220>

<223> positions 20 to 25

carry 2'-OCH<sub>3</sub> modified ribosyl residues

<400> 5

tcagattagg actgctcaga guuag

25

<210> 6

<211> 27

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Combined DNA/RNA Molecule:

oligonucleotide, linkages between positions 1 to 20  
are phosphorothioates, linkages between

positions 20 to 27 are phosphodiester,

<220>

<223> positions 21 to 27

carry 2'-OCH<sub>3</sub> modified ribosyl residues

<400> 6

tcagattagg actgctcaga uaguuag

27

<210> 7

<211> 35

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Combined DNA/RNA Molecule:

oligonucleotide, linkages between positions 1 to

19 are phosphorothioates, linkages between

positions 19 to 35 are phosphodiester,

<220>

<223> positions 21 to 35

carry 2'-OCH<sub>3</sub> modified ribosyl residues

<400> 7

tcagattagg actgctcaga guuagggtta gacaa

35

<210> 8

<211> 30

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence:

oligonucleotide, linkages between positions 1 to

15 are phosphorothioates, linkages between

positions 15 to 17, 19 to 23 and 25 to 30 are

phosphodiester,

<220>

<223> linkages between positions 17 to 19 and 23 to 25

are N3' to N5' phosphoramidates

<400> 8

tcagattagg actgcgtag ggttagacaa

30

<210> 9

<211> 34

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Combined DNA/RNA Molecule:  
oligonucleotide, linkages between positions 1 to  
15 are phosphorothioates, linkages between  
positions 15 to 20 are phosphodiesteres,

<220>

<223> position 21 n(L)= linker is  
3'-O(PO2)OCH2CH(CH2COOH)-(CH2)4-NH-

<220>

<223> linkages between positions 22 to 34 are  
[N-(2-aminoethyl)glycine] methylene carbonyl  
residues

<400> 9

tcagattagt actcgtcaga ntagggttag acaa

34

<210> 10

<211> 31

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence:  
oligonucleotide, linkages between positions 1 to  
20 are phosphorothioates, linkages between  
positions 20 to 31 are phosphodiesteres,

<220>

<223> position 31 is represented by  
3'-azido-2',3'-dideoxyguanosine

<400> 10

tcagattagt actcgtcaga gttagggtta g

31

<210> 11

<211> 28

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence:  
oligonucleotide, linkages between positions 1 to  
20 are phosphorothioate, linkages between  
positions 20 to 28 are N3' to N5'  
phosphoramidates

<220>

<223> position 28 is modified by a 3'-aminodeoxyribosyl  
residue

<400> 11  
aatcctcccc cagttcaccc gttagggt 28

<210> 12  
<211> 29  
<212> DNA  
<213> Artificial Sequence

<220>  
<223> Description of Combined DNA/RNA Molecule:  
oligonucleotide

<220>  
<223> Description of Artificial Sequence:  
oligonucleotide, linkages between positions 1 to  
18 are phosphorothioates, linkages between  
positions 18 to 26 are phosphodiester, linkages  
between positions 26-29 are phosphorothioates

<220>  
<223> positions 19 to 29 carry 2'-OCH<sub>3</sub> modified ribosyl  
residues

<400> 12  
tctcccagcg tgcgcatgu uaggguuag 29

<210> 13  
<211> 25  
<212> DNA  
<213> Artificial Sequence

<220>  
<223> Description of Artificial Sequence:  
oligonucleotide, linkages between positions 1 to  
15 are phosphorothioates,

<220>  
<223> linkages between 17 to 22 are modified by  
[N-(2-aminoethyl)glycine]methylene carbonyl  
residues

<220>  
<223> position 16 n(L)= linker is  
O(PO<sub>2</sub>)-OCH<sub>2</sub>-CH-(CH<sub>2</sub>COOH)-(CH<sub>2</sub>)<sub>4</sub>-NH-

<400> 13  
atgtatgctg tggctngtta ggagg 25

<210> 14  
<211> 23

<212> DNA  
<213> Artificial Sequence

<220>  
<223> Description of Artificial Sequence:  
oligonucleotide, linkages between positions 1 to  
12 are phosphorothioates, linkages between  
positions 12 to 23 are N3' to N5'  
phosphoramidates

<220>  
<223> position 23 is modified by a 3'-aminodeoxyribosyl  
residue

<400> 14  
gtactgtca gagtagggt tag 23

<210> 15  
<211> 20  
<212> DNA  
<213> Artificial Sequence

<220>  
<223> Description of Artificial Sequence:  
oligonucleotide, linkages between positions 1 to  
12 are phosphorothioates, linkages between  
positions 12 to 20 are N3' to N5' phosphoramidates

<220>  
<223> position 20 is modified by a 3'-aminodeoxyribosyl  
residue

<400> 15  
gtactgtca gagtagggt 20

<210> 16  
<211> 23  
<212> DNA  
<213> Artificial Sequence

<220>  
<223> Description of Combined DNA/RNA Molecule:  
oligonucleotide

<220>  
<223> Description of Artificial Sequence:  
oligonucleotide, linkages between positions 1 to  
12 are phosphorothioates, linkages between  
positions 12 to 20 are phosphodiester, linkages between  
positions 20 to 23 are phosphorothioates

<220>  
<223> positions 13 to 23 carry 2'-OCH<sub>3</sub> modified  
ribosyl residues

<400> 16  
gtactgtca gaguuagggg uag 23

<210> 17  
<211> 19  
<212> DNA  
<213> Artificial Sequence

<220>  
<223> Description of Artificial Sequence:  
oligonucleotide, linkages between positions 1 to  
12 are phosphorothioates,

<220>  
<223> linkages between positions 14 to 19 are modified  
by [N-(2-aminoethyl)glycine]methylene carbonyl  
residues

<220>  
<223> position 13 n(L)= linker is  
·O(PO<sub>2</sub>)·OCH<sub>2</sub>·CH·(CH·(CH<sub>2</sub>COOH)·(CH<sub>2</sub>)<sub>4</sub>NH·

<400> 17  
gtactgtca gangttagg 19

<210> 18  
<211> 23  
<212> DNA  
<213> Artificial Sequence

<220>  
<223> Description of Combined DNA/RNA Molecule:  
oligonucleotide

<220>  
<223> Description of Artificial Sequence:  
oligonucleotide, linkages between positions 1 to  
12 are phosphorothioates, linkages between  
positions 12 to 20 are phosphodiester, linkages between  
positions 20 to 23 are phosphorothioates

<220>  
<223> positions 13 to 23 carry 2'-OCH<sub>3</sub> modified ribosyl  
residues

<400> 18

ggccagcagc tgguuagggg uag

23

<210> 19  
<211> 19  
<212> DNA  
<213> Artificial Sequence

<220>  
<223> Description of Combined DNA/RNA Molecule:  
oligonucleotide

<220>  
<223> Description of Artificial Sequence:  
oligonucleotide, linkages between positions 1 to  
8 are phosphorothioates, linkages between  
positions 8 to 16 are phosphodiester, linkages  
between positions 16 to 19 are phosphorothioates

<220>  
<223> positions 9 to 19 carry 2'-OCH<sub>3</sub> modified ribosyl  
residues

<400> 19  
tgctcagagu uagggguag

19

<210> 20  
<211> 15  
<212> DNA  
<213> Artificial Sequence

<220>  
<223> Description of Artificial Sequence  
oligonucleotide, linkages between positions 1 to  
8 are phosphorothioates,

<220>  
<223> linkages between positions 10 to 15 are modified by  
[N-(2-aminoethyl)glycine]methylene carbonyl  
residues

<220>  
<223> position 9 n(L) = linker is  
-O(PO<sub>2</sub>)-OCH<sub>2</sub>-CH-(CH<sub>2</sub>COOH)-(CH<sub>2</sub>)<sub>4</sub>-NH

<400> 20  
tgctcagang ttagg

15

<210> 21  
<211> 34  
<212> DNA  
<213> Artificial Sequence



<220>  
 <223> Description of Artificial Sequence  
 oligonucleotide, linkages between positions 1 to  
 20 are phosphorothioates,  
 <220>  
 <223> linkages between positions 22 to 34 are modified  
 by [N-(2-aminoethyl)glycine]methylene carbonyl  
 residues  
 <220>  
 <223> position 21 n(L)= linker is  
 -O(PO2)-OCH2-CH-(CH2COOH)-(CH2)4-NH  
 <400> 21  
 tcagacatat actgctcaga ntagggtag acaa 34

<210> 22  
 <211> 15  
 <212> DNA  
 <213> Artificial Sequence  
 <220>  
 <223> Description of Artificial Sequence  
 oligonucleotide, linkages between positions 1 to  
 10 are phosphorothioates, linkages between  
 positions 10 to 15 are N3' to N5' phosphoramidates  
 <220>  
 <223> position 15 is modified by a 3'-aminodeoxyribosyl  
 residue  
 <400> 22  
 actgctcaga gtag 15

<210> 23  
 <211> 21  
 <212> DNA  
 <213> Artificial Sequence

<220>  
 <223> Description of Combined DNA/RNA Molecule:  
 oligonucleotide

<220>  
 <223> Description of Artificial Sequence  
 oligonucleotide, linkages between positions 1 to  
 10 are phosphorothioates, linkages between  
 positions 10 to 21 are phosphodiester

<220>

<223> positions 11 to 21 carry 2'-OCH<sub>3</sub> modified ribosyl residues

<400> 23

actgctcaga guuaggguaa g

21

<210> 24

<211> 24

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence:

oligonucleotide, linkages between positions 1 to 12 are phosphorothioates,

<220>

<223> linkages between positions 14 to 24 are modified by [N-(2-aminoethyl)glycine]methylene carbonyl residues

<220>

<223> position 13 n (L)= linker is =

O(PO<sub>2</sub>)-OCH<sub>2</sub>-CH-(CH<sub>2</sub>COOH)-(CH<sub>2</sub>)<sub>4</sub>-NH-

<400> 24

atactgctca gangttaggg ttag

24

<210> 25

<211> 26

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence:

oligonucleotide, linkages between positions 1 to 15 are phosphorothioates, linkages between positions 15 to 26 are N3' to N5' phosphoramidates

<220>

<223> position 26 is modified by a 3'-aminodeoxyribosyl residue

<400> 25

ttagtactgc tcagagtttag ggtag

26

<210> 26

<211> 25

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence:

oligonucleotide, linkages between positions 1 to  
20 are phosphorothioates, linkages between  
positions 20 to 25 are N3' to N5' phosphoramidates

<220>

<223> position 25 is modified by a 3'-aminodeoxyribosyl  
residue

<400> 26

tcagattagt actgctcaga gtttag

25

<210> 27

<211> 25

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence:

oligonucleotide, linkages between positions 1 to  
20 are phosphorothioates, linkages between  
positions 20 to 31 are N3' to N5' phosphoramidates

<220>

<223> position 31 is modified by a 3'-aminodeoxyribosyl  
residue

<400> 27

tcagattagt actgctcaga gttagggttag

25

<210> 28

<211> 21

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence:

oligonucleotide, linkages between positions 1 to  
10 are phosphorothioates, linkages between  
positions 10 to 21 are N3' to N5' phosphoramidates

<220>

<223> position 21 is modified by a 3'-aminodeoxyribosyl  
residue

<400> 28

actgctcaga gttagggtta g

21

<210> 29

<211> 6

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: telomeric  
DNA of man

<400> 29

ttaggg

6